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U.S. PATENT APPLICATION

Title: **REUSABLE PROTECTIVE**
ENVELOPE
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Title: REUSABLE PROTECTIVE ENVELOPE

Field of the invention

[0001] This invention relates to envelopes, and in particular to protective reusable envelopes.

Background of the invention

5 [0002] Reusable envelopes are well known in the art. One such envelope is disclosed in US Patent No. 5,950,916 to Santangelo. Santangelo discloses a flap hinged to the envelope. The flap includes a number of panels separated by tear strips. Each of the panels has a layer of adhesive on its underside. The first time the envelope is used the lowermost panel is
10 adhered to the envelope for closure thereof. The envelope is opened by tearing along the adjacent tear strip. The recipient can reuse the envelope by adhering the adjacent panel.

[0003] The envelope disclosed in Santangelo has a disadvantage. It is made of a single sheet of paper. Consequently, the envelope is not capable
15 of providing protection to delicate or fragile objects which may be placed in the envelope.

[0004] Accordingly, there is a need for a reusable envelope which provides protection for delicate or fragile contents during transport.

Summary of the invention

20 [0005] An envelope is provided. The envelope comprises a front panel and a rear panel. Each of the front and rear panels comprises an outer layer and an inner cushioning layer formed from a plastic air-cellular material. The front panel is connected to the rear panel along a bottom edge and a pair of opposing side edges. A flap is foldably connected to a top edge of the rear
25 panel. The flap comprises a plurality of separable portions. Each of the separable portions includes an adhesive layer on an adjacent surface thereof. The flap is movable between a closed position where a selected separable portion is adhered to the front panel, and an open position where the flap is separated from the selected separable portion. The flap is adapted to be

repeatedly closed and opened by sequentially adhering and separating the separable portions in a proximal direction.

5 **[0006]** Preferably, the inner cushioning layer comprises: a) a first layer of plastic film defining a plurality of spaced-apart concave cavities and a plurality of land areas between the concave cavities; and b) a second layer of plastic film bonded to the first layer along the land areas. The first layer is bonded to the outer layer along a distal portion of the concave cavities.

10 **[0007]** The present invention provides the advantage of a reusable envelope which is capable of improved protection of fragile or delicate contents.

Brief description of the drawings

[0008] In the accompanying drawings:

[0009] Figure 1 is a perspective view of an envelope according to a preferred embodiment of the present invention;

15 **[0010]** Figure 2 is a rear plan view of the preferred embodiment;

[0011] Figure 3 is a partial cross sectional view of an envelope panel according to the preferred embodiment;

[0012] Figure 4 is a cross-sectional view of the preferred embodiment;

20 **[0013]** Figure 5 is a front plan view of the preferred embodiment in the closed position; and

[0014] Figure 6 is a front plan view of the preferred embodiment in the open position after one use.

Detailed description of the invention

25 **[0015]** Figure 1 shows an envelope **10** according to a preferred embodiment of the present invention.

[0016] Referring to Figures 1, 2, and 4, the envelope **10** includes a front panel **12** and a rear panel **14**. The panels are joined at opposing side edges **16**, **18** and at a bottom edge **20**. Preferably, the front and rear panels **12**, **14** are integrally constructed from a single sheet of a composite material

(described in detail below), which is folded at bottom edge **20**. The front and rear panels **12**, **14** are bonded together at side edges **16**, **18** by any suitable means, such as being heat sealed along heat seal strips **22**. The front and rear panels **12**, **14** define a storage space (not shown) between them which is
5 accessed through a top portion **24** of the envelope **10**.

[0017] Referring now to Figure 3, the composite material (from which the front and rear panels **12**, **14** are formed) includes an outer layer **30** and an inner cushioning layer **32**. The outer layer **32** is preferably constructed from polyethylene, and may be corona treated if required for display of writing or
10 illustrations (such as branding).

[0018] The inner cushioning layer **32** is formed from an air-cellular material, which is itself formed from a first layer **34** and a second layer **36**. The first layer **34** is a plastic film in which a plurality of spaced apart concave cavities **38** are formed. The second layer **36** of plastic film is a substantially
15 planar layer which is superimposed onto the first layer **34** and heat laminated onto land areas **37** of first layer **34** which surround the concave cavities **38**. First and second layers **34**, **36** may be formed of any suitable thermoplastic film, such as low density polyethylene. Such films are well-known and commercially available.

20 **[0019]** The inner cushioning layer **32** is bonded to the outer layer **30** by heat laminating the distal portions **39** of the concave cavities **38** to the outer layer **30**.

[0020] Referring again to Figures 1, 2, and 4, a flap **40** is connected to a top edge **41** of rear panel **14**. Preferably, the flap **40** is formed out of the
25 same material as the outer layer **30** and is constructed integrally with the outer layer **30** of rear panel **14**. Preferably, the top edge **41** is a fold to permit the flap **40** to open and close.

[0021] Continuing to refer to Figures 1, 2, and 4, the flap **40** includes a plurality of separable portions **42**. For convenience, the embodiment
30 illustrated and described herein includes two separable portions: a distal

separable portion **42a** and a proximal separable portion **42b**. As used herein “distal” means the portion of the flap **40** furthest away from the fold **41**, and “proximal” means the portion of the flap **40** closest to the fold **41**. It will be understood by those skilled in the art that the flap may include three or more
5 separable portions **42**.

[0022] Each separable portion **42a**, **42b** includes an adhesive layer **44** coated on an adjacent surface (i.e. adjacent to panel **12** when folded about fold **41**) thereof. The adhesive layer **44** may cover all of the interior surface of the separable portions **42** or only a part thereof. The adhesive layer **44** may
10 be composed of any suitable adhesive coating the interior surface of the separable portion **42**, or may be an additional layer of material covered with adhesive (such as two-sided tape). A keeper strip **46** may be provided to cover the adhesive layer **44** prior to use. The purpose of the keeper strip **46** is to prevent accidentally adhering the flap **40**.

15 **[0023]** Continuing to refer to Figures 1 and 2, the separable portions **42a**, **42b** may be separated by any suitable means, such as a tear strip **48**.

[0024] The operation of the preferred embodiment will now be described with reference to Figures 1 and 4-6. After placing the contents into the envelope **10**, the user removes the keeper strip **46** from the adhesive
20 layer **44** of a selected separable portion **42**, which in this embodiment, is the distal separable portion **42a**. The user closes the envelope **10** by folding the flap **40** about fold **41** onto the front panel **12**. The adhesive layer **44** of the distal separable portion **42a** adheres the flap **40** to the front panel **12** in order to maintain the envelope **10** in the closed position until it is ready to be
25 opened by the recipient.

[0025] In order to open the envelope **10**, the recipient tears the flap **40** along tear strip **48**, thereby separating the distal separable portion **42a** from the flap **40**. As best shown in Figure 6, the recipient can then open the flap **40** to access the contents of the envelope **10**, while the distal separable portion
30 **42a** remains adhered to the front panel **12**.

[0026] When the recipient wishes to reuse the envelope **10**, the recipient removes keeper strip **46** from the proximal separable portion **42b** to expose its adhesive layer **44**. The recipient can then adhere the flap **40** to the front panel **12** in the same manner as described above.

- 5 **[0027]** Although in the preferred embodiment described herein only includes two separable portions **42** and can, therefore, only be used twice, additional separable portions may be provided. In such embodiments, the number of times the envelope may be re-used is equal to the number of separable portions in the flap, provided that the separable portions are used
10 sequentially starting with the distal separable portion.

[0028] The present invention provides the advantage of a protective plastic envelope which cushions its contents, and at the same time may be conveniently reused several times, so that it does not have to be thrown out after only a single use.

- 15 **[0029]** While the present invention as herein shown and described in detail is fully capable of attaining the above-described objects of the invention, it is to be understood that it is the presently preferred embodiment of the present invention and thus, is representative of the subject matter which is broadly contemplated by the present invention, that the scope of the present
20 invention fully encompasses other embodiments which may become obvious to those skilled in the art, and that the scope of the present invention is accordingly to be limited by nothing other than the appended claims, in which reference to an element in the singular is not intended to mean "one and only one" unless explicitly so stated, but rather "one or more." All structural and
25 functional equivalents to the elements of the above-described preferred embodiment that are known or later come to be known to those of ordinary skill in the art are expressly incorporated herein by reference and are intended to be encompassed by the present claims. Moreover, it is not necessary for a device or method to address each and every problem sought to be solved by
30 the present invention, for it is to be encompassed by the present claims.